In the Claims

Please amend Claim 1, cancel Claims 2 through 19, and add new Claims 20 through 38 before calculating the filing fee in the above-styled patent application.

1. (Currently Amended) A computer-readable storage device storing a set of computer-executable instructions implementing a method for transmitting geographic locations of a mobile object to a principal entity over a wireless communications system, comprising:

sending a full position transmission comprising absolute latitude and longitude coordinates of a first position of the mobile object to the principal entity;

determining a second position of the mobile object and whether the second position is within a geographic area that includes the first position;

if the second position is within the geographic area, sending a delta position transmission to the principal entity comprising a numeric value representing longitude and latitude coordinates of the second position relative to the previously transmitted absolute coordinates of the first position; and

if the second position is outside the geographic area, sending a full position transmission comprising absolute latitude and longitude coordinates of the second position to the principal entity.

Claims 2-19: (Cancelled)

20. (New) A mobile object having a communications unit operative to transmit geographic locations to a principal entity over a wireless communications system, the communications unit comprising:

a GPS receiver operative to determine a first position of the mobile object and a second position of the mobile object;

a controller operative to determine whether the second position is within a geographic area that includes the first position;

a transceiver operative to send a full position transmission comprising absolute latitude and longitude coordinates of the first position of the mobile object to the principal entity, wherein

the transceiver, responsive to a determination that the second position is within the geographic area, is further operative to send a delta position transmission to the principal entity comprising a numeric value representing longitude and latitude coordinates of the second position relative to the previously transmitted absolute coordinates of the first position, and

the transceiver, responsive to a determination that the second position is outside the geographic area, is further operative to send a full position transmission comprising absolute latitude and longitude coordinates of the second position of the mobile object to the principal entity.

21. (New) The communications unit of claim 20, wherein the geographic area is a predetermined size based on the capacity of the wireless communications system.

22. (New) The communications unit of claim 21, wherein the predetermined size of the geographic area is determined by calculating the largest geographic area in which a geographic position can be expressed as a relative position to previously transmitted absolute coordinates using a maximum bit value of the wireless communications system's most succinct message.

23. (New) The communications unit of claim 20, wherein the geographic area is a predetermined size based on a portion of the capacity of the wireless communications system that is allocated for position data.

24. (New) The communications unit of claim 20, wherein the geographic area is centered at the previously transmitted absolute coordinates of the first position.

25. (New) The communications unit of claim 20, wherein the GPS receiver is further operative to receive absolute longitude and latitude coordinates for the mobile object.

26. (New) The communications unit of claim 25, wherein the controller is operative to determine whether a set of coordinates received via the GPS receiver is the first set of coordinates received within a continuous period of sequential asynchronous location identification.

27. (New) The communications unit of claim 26, wherein the transceiver is operative to send a full position transmission of the absolute coordinates of the mobile object to the principal entity if the set of coordinates received by the GPS receiver is the first set of coordinates received within the period.

28. (New) The communications unit of claim 20, wherein the wireless communications system supports a message having a data payload allocated for position data of less than forty-one bits.

29. (New) The communications unit of claim 20, wherein the geographic area is independent of a constant reference geographic location.

30. (New) The communications unit of claim 20, wherein the geographic area is independent of a fixed geographic reference point.

31. (New) A communications unit for efficient transmission of geographic locations of a mobile object to a principal entity over a wireless communications system, comprising:

a GPS receiver for receiving absolute latitude and longitude coordinates of the mobile object at a first position;

a controller operative to determine whether the absolute coordinates are the first coordinates received during a continuous period of sequential asynchronous location identification, wherein the controller establishes a geographic area centered at the absolute coordinates and having a predetermined size in the event that the absolute coordinates are the first coordinates and determines whether the absolute coordinates are within a previously established geographic area centered at previously transmitted absolute coordinates and having a predetermined size if the coordinates are not the first coordinates; and

a transceiver, coupled to the controller, operative to send a full position transmission comprising the absolute coordinates to the principal entity if the coordinates are the first coordinates received during the period, the transceiver further operative to send a delta position transmission to the principal entity comprising a numeric value representing longitude and latitude coordinates of the first position relative to previously transmitted absolute coordinates if the coordinates are within the previously established geographic area, the transceiver further operative to send a full position transmission comprising the absolute coordinates to the principal entity and establishing a geographic area centered at the absolute coordinates and having a predetermined size if the coordinates are outside the previously established geographic area.

32. (New) The communications unit of claim 31, wherein the predetermined size of a geographic area is based on the capacity of the wireless communications system.

33. (New) The communications unit of claim 31, wherein the predetermined size of a geographic area is based on a portion of the capacity of the wireless communications system that is allocated for position data.

34. (New) The communications unit of claim 31, wherein the wireless communications system supports a message having a data payload allocated for position data of less than forty-one bits.

35. (New) The communications unit of claim 31, wherein the geographic area is independent of a constant reference geographic location.

36. (New) The communications unit of claim 31, wherein the geographic area is independent of a fixed geographic reference point.

37. (New) The communications unit of claim 31, wherein the numeric value of the delta position transmission and the previously transmitted absolute coordinates are used by the principal entity to calculate the absolute coordinates of the mobile object at the first position.

38. (New) The communications unit of claim 31, wherein the predetermined size of the geographic area is determined by calculating the largest geographic area in which a geographic position can be expressed as a relative position to previously transmitted absolute coordinates using a maximum bit value of the wireless communications system's most succinct message.

REMARKS

Applicants respectfully request that the Examiner enter the above amendments and new claims prior to examination of this continuation patent application. Applicants have amended Claim 1, cancelled Claims 2-19, and added new Claims 20-38. Applicants have also presented an amendment for a replacement title and have amended the specification to indicate that the present application is a continuation application of pending U.S. Patent Application Serial No. 10/262,372 filed on September 20, 2002. The independent claims are Claims 1, 20 and 31.